3.25 Parametric Equations(Odd answers)

Name _____ Date _____ Period _____

Complete the table that accompanies each pair of parametric equations.

1. $x=4t+1,\quad y=t-2,\quad for\ 0\le t\le 3$

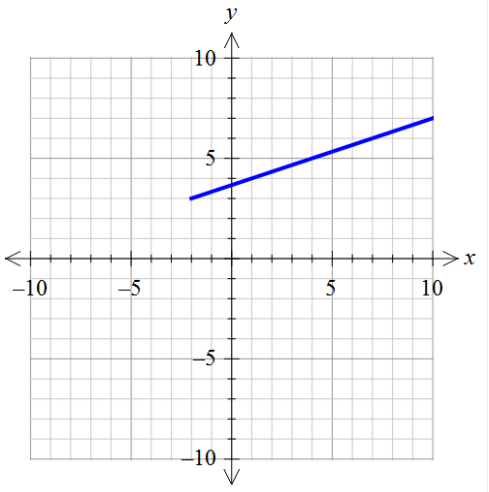
t	*x*	*y*
0	1	-2
1	5	-1
2	7	0
3	13	1

3. $x=t^2,\quad y=3t-1,\quad for\ 1\le t\le 5$

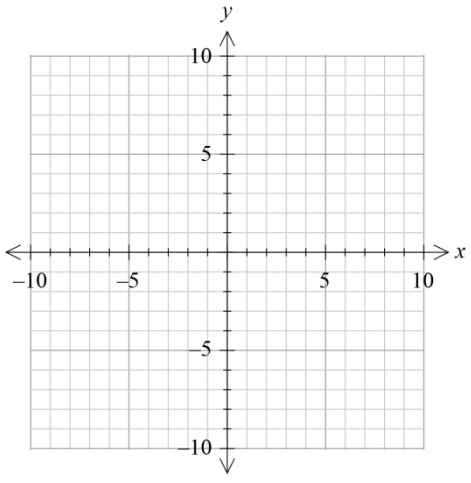
t	*x*	*y*
1	1	2
2.5	6.25	6.5
$\sqrt{5}$	5	$3\sqrt{5}$-1
4	16	11
5	25	14

Graph each pair of parametric equations in the rectangular coordinate system.

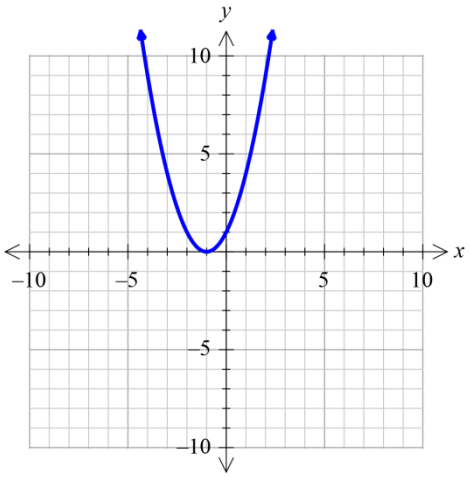
5. $x=3t-2,\quad y=t+3,\quad for\ 0\le t\le 4$



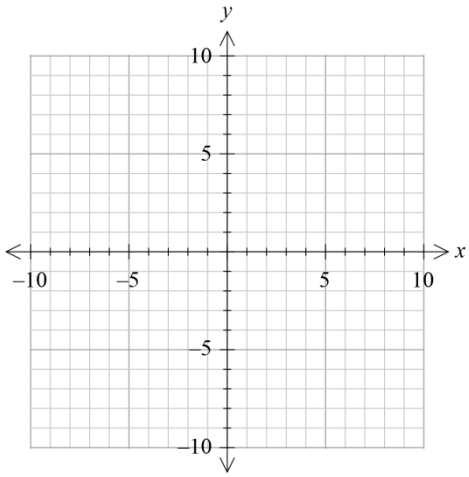
6. $x=4-3t,\quad y=3-t,\quad for\ 1\le t\le 3$



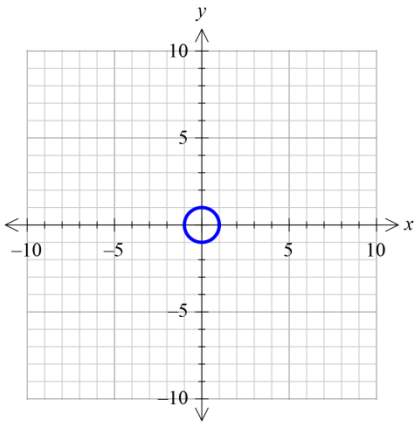
7. $x = t - 1, \quad y = t^2, \quad for\ t\ in\ (-\infty, \infty)$



8. $x = t - 3, \quad y = \frac{1}{t}, \quad for\ t\ in\ (-\infty, \infty)$



9. $x = \cos t, \quad y = \sin t$



Eliminate the parameter and identify the graph of each pair of parametric equations.

10. $x = 4t - 5, \quad y = 3 - 4t$

Type of graph:

11. $x = -4\sin 3t, \quad y = 4\cos 3t$

Circle with radius of 4: $x^2 + y^2 = 16$

Type of graph:

13. $x = t + 4, \quad y = \sqrt{t-5}$

Square root curve: $y = \sqrt{x-9}$

Type of graph:

Write a pair of parametric equations that will produce the indicated graph. (Answers may vary.)

15. The line segment starting at (-2, 4) with t = 3 and ending at (5, -9) with t = 7.

x = 7/4t – 29/4, y = -13/4t + 55/4 $\quad 3 \le t \le 7$

17. That portion of the circle $x^2 + y^2 = 9$ that lies below the x-axis.

x = 3cos t , y = 3sin t $\quad \pi \le t \le 2\pi$

19. The circle whose polar equation is r = 2 sin Θ.

x = sin(2t), y = $2\sin^2(t)$ $\quad 0 \le t < 2\pi$

21. For how many seconds is the arrow of Exercise 20 in flight?

$t \approx 9.4 \sec.$

Review

23. Find the trigonometric form for the complex number $3 - 3i\sqrt{3}$. Use radian measure for the argument.

$$6\left(\cos\frac{5\pi}{3} + i\sin\frac{5\pi}{3}\right)$$